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W A S H I N G T O N, D. C.





A N  
INAUGURAL DISSERTATION  
O N  
SLEEP AND DREAMS  
T H E I R  
EFFECTS ON THE FACULTIES OF THE MIND  
AND THE  
CAUSES OF DREAMS.  
SUBMITTED TO THE EXAMINATION  
O F T H E  
REV. WILLIAM SMITH, S. T. P. PROVOST  
T H E  
TRUSTEES AND MEDICAL PROFESSORS  
O F T H E  
COLLEGE O F PHILADELPHIA  
FOR THE DEGREE OF  
D O C T O R O F M E D I C I N E :  
*ON THE TWENTY-THIRD DAY OF JUNE, A. D. 1791.*  
B Y S A M U E L F O R M A N C O N O V E R,  
O F T H E S T A T E O F N E W - J E R S E Y ,  
M E M B E R O F T H E M E D I C A L S O C I E T Y O F S A I D S T A T E ,  
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A M E R I C A N M E D I C A L S O C I E T Y O F P H I L A D E L P H I A .

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M D C C X C I .

Published by the author  
as a sample of his disertations  
from your friend very  
affectionately  
The Author

T O

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AND TO

BENJAMIN SMITH BARTON, M. D.

PROFESSOR OF NATURAL HISTORY AND BOTANY IN THE COLLEGE OF PHILADELPHIA, &c. &c.

Men,

Who have approved themselves friends to the science of Medicine,

Under whose fostering hands I have been nurtured in the legitimate principles of their respective branches of medical knowledge,

AND

Whose humanity, liberality, and great ability to relieve the distressed, and to smooth the avenues to death, render them not only respectable in their professions, but also useful and worthy members of society,

*THIS DISSERTATION IS,*

With all due respect and gratitude,

*Inscribed,*

*By their much indebted friend,  
and devoted servant, and pupil,*

*The Author.*



ON  
SLEEP AND DREAMS.

THE subject of SLEEP, like many other subjects in medicine, cannot be reduced to the principles of mathematical certainty ; but, that it may be illustrated by a complete induction of the effects of all the exciting powers producing sleep, I imagine, will not be denied.

“ SLEEP, without dreaming,” says Mr. Locke, “ is rest from all study\*” of the mind and operation of the animal functions of the body. In “sleep”, when “ quite complete,” says Dr. Cullen, “ the motion and “ mobility of the nervous power, with respect to the “ whole of what are called the animal functions, en-“ tirely cease ; or, as I would express it, are in a state “ of *collapse*, and are very different from the state of “ waking, which, in healthy persons, I would call a “ state of general and entire excitement †.” That there is a certain degree of excitement, necessarily existing in the animal system, to constitute perfect and uninterrupted health, is agreed on by all. There must also be, I conceive, a certain point, or degree, of excitement, different from the foregoing, favouring profound sleep, which is produced by certain powers operating on the living property inherent in every animal. This property has received different names, from different authors. It is called by Baron Haller the *vis insita* ; by Dr. Cullen, the *nervous power* ; by Mr. John

\* On the Human Understanding.

† First Lines of the Practice of Physic, vol. iv. pag. 127.

Hunter, *stimulability*; and by Dr. Brown, *the excitability*. The exciting powers acting on the excitability, producing excitement favourable to health, and inviting sleep, if carried beyond their proper boundaries, or withheld, occasion morbid sleep, disease, and even death itself. The *sleep-inviting point*, or that degree of excitement necessary to constitute profound sleep, appears to exist in a kind of indirect debility of the system, or partially-exhausted excitability to the powers producing it, which it is very difficult to explain. "Sleep, then, is the effect of the actions of "the day, at first always giving more and more excitement, but less and less in proportion to the continuance of their operation, but in such a sort as always to add some excitement, till at last the matter comes to a point, where the degree of excitement necessary to constitute the waking state no longer exists." Every day's experience teaches us the effects of the exciting powers, in producing sleep: It teaches us, that, if they are applied in excess, or, though moderate, are long continued, they run the excitement on to actual indirect debility, and occasion *morbid sleep*. And, that sleep may be brought on sooner or later, by the excessive or deficient application of the causes producing it, is certain. By all unusual exertions, those unaccustomed to fatigue, &c. will have their sleep hurried or produced sooner than in common, and it is generally of the morbid kind.

A MAN of science and of genius, in the pursuit of mental acquirement, stimulated by the spirit of emulation, or any other exciting emotion, will have his excitability considerably wasted, and his excitement increased beyond the point constituting *profound sleep*, but favouring the waking state; and this state may be kept up, or rendered more tolerable, a considerable time, by the assistance of the diffusible, together with the durable, stimuli, given at proper intervals, and changed frequently in kind, and in quantity, and accommodated

commodated to the excitability then existing in the system, favouring the waking state\*.

I THINK it has been sufficiently proven, that the causes producing *profound sleep*, or *sleep without dreaming*, deprive the mind of reflex-sensation. Mr. Locke (on the Human Understanding, in the first volume) observes, that the *soul* does not think during profound sleep, and that this cannot be proven, as there appears to have been a suspension of time to the sleeping man. The Chevalier Ramsay observes, “It is false to maintain, “with the Cartesians, that the *soul* thinks always. They “never did, nor can, give any solid reason for this as-“sertion. Experience shows the contrary, when we “are in a swoon, or in deep sleep. To think, know, “and feel always, are privileges of a pure and unfallen “state, when the living images shall have a perfect re-“semblance to him who never slumbers. This is one “of the principal changes made in nature since the “fall, and a law established in the sphere of lapsed “souls.”

THE reason why children sleep so much, has been supposed, by some, to be owing to their wanting reflex-sensation. May not the phænomenon of sleep in children be explained upon other physical causes, and not upon the want of reflex-sensation? That the excitability of a child is more abundant, cannot, or will not, I imagine, be denied; and from this I may justly infer, that the waking and sleeping states of children do more easily run into each other than they do in adults. Their excitability, therefore, is more susceptible of the action of stimuli of every kind, and the sleep-inviting point is, consequently, produced, or brought on, sooner in children, by fewer causes, in a given time, than in adults.

## A PATIENT

\* See Dr. Brown's Elements of Medicine, in note of § xxxi.

A PATIENT in a convalescent state of a typhus-fever is considerably debilitated, and very excitable to any stimulus over-proportioned to the abundant excitability then existing in the system. The point at which sleep begins is sooner produced by stimulant powers, and the waking state is likewise sooner brought back ; the intervals between the two stages of sleeping and waking are of less duration, and sleep is less profound than in a state of perfect and uninterrupted health \*.

THE sudden transition from sleeping to waking, and *vice versa*, is more observable in some persons, under certain circumstances, than in others ; and these sudden changes may apply to the above-mentioned cases. It has been observed in other persons, that the approach of sleeping and of waking is more gradual, and, in these cases, the “ears are often awake before the eyes “are opened, or see clearly, and the senses are often “awake before the power of voluntary motion is recog-“vered.” From the theory of sleep which I have endeavoured to establish, may not these facts be resolved upon the same physical causes partially influencing the system, and producing an unequal excitement and morbid sleep ?

IN a *typhus mitior*, the patient sleeps much, with a kind of stertorous breathing, and is easily wakened by an address not louder than common ; withholding it, he soon falls into an involuntary sleep. This kind of sleep, for the most part, is the consequence of a certain degree of debility, produced by some powers acting with considerable stimulant effect ; the reason is, this sleep depends upon less debility than that which constitutes

\* This idea may be extended to the female sex, as their original stamina, and the life they pursue, render them more delicate, and, of consequence, their excitability more abundant, than in the male. If these reasons be admitted as physically true, which, I think, will be readily agreed to, it will help to enforce the validity of the assertion, that the intellectual faculties of the female are more susceptible to impressions, their imagination more lively than that of the male ; and the reason why there are more wits among the former than among the latter.

tutes the disease. How does it come about, that every thing which stimulates produces that effect by its stimulant, and not by its sedative, virtue ? Let those accustomed to all the causes producing the *sleep-inviting point*, be removed from these causes, and exposed to the directly-debilitating powers, as darkness, silence, cold, rest, and abstinence ; these causes lessening the excitement (and accumulating the excitability), will increase a disposition to involuntary morbid sleep.

THERE are many facts which may be adduced in proof of this point. Even daily observation furnishes us with arguments in support of the position. Let us turn our attention to the industrious labourer, who is fatigued from his daily pursuits, exposed to the stimulating rays of light, and the noise of the busy world, who eats and drinks his hard earnings with a good appetite, and lays down to rest, attended with profound, refreshing sleep. Dr. Zimmerman says, " the *soldier* " *sleeps* even amidst the thunder of the cannon, when " he is worn out with excessive fatigue \*."—Change the order ; give him a day's rest, silence, darkness, &c. and he will fall into sleep of the morbid, restless kind.

THE regular returning time of sleeping and waking, is to be explained upon principles similar to the foregoing, and not upon the effects of habit. Habit is the effect of causes producing *sleep*, and not the cause of sleep ; which is too obvious to need any further explanation.

FROM what has already been said, we may explain the reason why all simple sounds, as the sound of a gentle cascade, the beating of rain upon a house, vocal or instrumental music, induce a disposition to *sleep*. They are to be resolved, likewise, upon the same physical principles as all other stimuli, producing a partial exhaustion of the excitability, and favouring the sleep inviting

\* A Treatise on Experience in Physic, vol. ii.

inviting point, and not upon the effects of sound simply preventing reflex-sensation, and causing sleep.— Sound and uninterrupted sleep refresh the bodily and mental powers, by accumulating, or bringing back, the greatly-wasted excitability to the stimuli of the preceding day, and preparing, or fitting it, for the operation of the exciting powers of the succeeding day.

In the latter part of night, and towards morning, the excitement is considerably diminished, the body in *some* degree weakened, and more easily affected by any stimulus, or hurtful power, that may be applied.

THIS living principle, inherent in the world of animals, upon which all natural stimuli exert their effects, in supporting the living existence, is not confined to them alone, but is likewise extended to the vegetable kingdom. The greatest physiologist\* the world has hitherto produced, did not, indeed, admit of *irritability* in vegetables; but the industry and sagacity of the Botanists have shewn us, that there is a very considerable number of vegetables, which exhibit signs of irritability, more or less obvious in proportion to their age, to their strength, or to the part to which the irritating cause is applied. This has been observed in the leaves and flowers of several plants. Mr. Bonnet, of Geneva, has, I think, incontestibly demonstrated, that the leaves of vegetables possess the power of voluntary motion. He has shewn us that these parts, or organs, always present their upper surface to the air, and that whenever a branch is turned out of its natural position, the leaves of that branch immediately assume a new direction. May we not venture to add, that the *voluntary* and *involuntary motions* of plants are more conspicuous, and remarkable in the organs of fructification, especially in the *stamina* and *pistils*, than in the leaves, or any other parts, of vegetables; for in many plants, as soon as these generative organs have arrived at maturity, the

*stamina*

\* Baron Haller.

*Stamina* embrace the *pistil*, with a seemingly-venereal appetite, and discharge their fecundating influence, from the cells of the antheræ, upon the female organ—after this the *stamina* resume their former position, and, in a short time, pine, wither, and die? The *involuntary* and *voluntary* motions of vegetables, are observable in the *Berberis Vulgaris*, or common berberry, and many others; the filaments of these plants, when touched by a pin, or any other mechanical stimulus, are immediately put in motion, and apply themselves to the *pistillum*, on which they discharge a portion of their fertilizing dust. The wonderful *irritability* of the *stamina* of the *Cistus Helianthemum*\*, is remarkable, chiefly, about sun-rise; in the evening the irritability is nearly extinguished, and on the following morning, this great, unequivocal, never-failing characteristic of life, returns again, and so on through the whole course of the vegetable life. All vegetables are more irritable in the morning *than in the evening*, to any stimuli that may be applied. The leaves of many vegetables, in the day, assume an appearance very different, from that which they do at night time. They are folded up, or contracted in the night; but in the day time, they are generally expanded; and, hence arises that particular state of vegetables, which constitutes what Linnæus and other naturalists have denominated *Somnus Plantarum*, or the *sleep of plants*. During the continuance of this *vegetable-sleep*, the appearance of the plant is so much changed, that the most experienced botanist is sometimes at a loss to know it, without a very minute examination. In some plants, the *inviting sleeping point* may be induced by robbing them of light for a time, but upon the return of light, they resume their waking state. We may lay it down as a pretty constant and certain axiom, that the *sleep of vegetables*, is more or less profound in proportion to their vigour or debility. †

If

\* The Dwarf Cistus, or Little Sun-Flower.

† Some of these hints on the *irritability*, *voluntary* and *involuntary motions* of vegetables, were suggested to me by Benjamin Smith Barton, M. D. Professor of Natural History and Botany in the college of Philadelphia, &c. &c.

If the vigour and debility depend upon the effects of stimuli acting on the *irritability* in vegetables : If the motions likewise depend upon, and are subservient to a “*vegetable will* ;” and if sleep more or less profound, depends upon the application of stimuli, which, I think has been sufficiently proven ; would it be unphilosophical to infer, that vegetables, in time of morbid sleep, are disturbed with dreams peculiar to themselves ?

THE connection of causes and effects, traced in the vegetable world, and compared with those of the animal kingdom, point out the striking analogy between the two ; and proclaim that Nature is uniformly the same in all her operations.

AN accurate knowledge of the effects of *sleep*, upon the human system, will enable us to see the propriety of fortifying the body, in the morning, with either the durable or diffusible stimuli, against the noxious quality of the air at certain seasons of the year ; it likewise will further enable us, to point out the impropriety of the conjugal pair gratifying or indulging the hymeneal pleasures in the morning. Thus, the temperature and purity of the air, food and drink, labour of body or of mind, the stimulus of light and sound, “the exercise of passion and emotion, when their stimulus neither stops short of the proper point, nor goes beyond it, all give a disposition to sleep,” of the most salutary kind.

BEFORE I conclude the subject of *sleep*, I beg leave to mention a few remarkable, important, and valuable facts, concerning the *Hybernation* of animals, which will, beyond all scruple, help to resolve many phænomena in nature, shew the great sedative power of cold, and the effects it has in producing *sleep*, in many families of the animal kingdom. By the term *Hybernation*, is to be understood, that dormant state in which animals of many different kinds, subsist in winter without food,

food, without any apparent motion, and without sense, seemingly found *asleep*, and not recoverable from it unless placed in a warmer atmosphere. It is to be observed, that this faculty is confined to those animals that are the inhabitants of the colder regions of the earth; at least we know of no instance of *Hybernation* of animals, which dwell in the intratropical parts of the earth. This state of torpidity is most remarkable in the amphibious animals, such as the frogs, the toads, the lizards, and, I suspect, the serpents. There are likewise several quadrupeds, which are remarkable for remaining during winter in a torpid state, such as the *bear*, the *badger*, the *squirrel*, the *hedge-hog*, the *dormouse*, the *bat*, &c. The Count de Buffon, and several other naturalists, ascribe this state to the coldness of *their* blood; but, according to Mr. John Hunter's experiments, it does not appear that the blood of the *bear*, of the *hedge-hog*, of the *badger*, or of the *dormouse*, is a degree colder, than what we find to be in general the case, in animals of the same class. It has been found by experiments made by Mr. Hunter, that a frog receives and digests food, when it is in an atmosphere in which the thermometer stands at  $60^{\circ}$ . but that it does not digest food when the cold comes down to  $40^{\circ}$ . It has from thence been supposed, that those dormant quadrupeds, the *bear*, the *badger*, the *hedge-hog*, the *dormouse*, and perhaps the *squirrel*, when the heat of their blood is reduced from  $90^{\circ}$ . and  $100^{\circ}$ . by cold to  $70^{\circ}$ . that then they lose the power of digestion, and that the excretions, as well as the secretions, are very much diminished. This is the most plausible explanation of the fact hitherto offered.

DOCTOR Pallas says, the *fuslik* becomes torpid in a great degree of cold; and that the heat of this animal is reduced from  $103$  to  $80$  of the scale of Fahrenheit.\*—In the *hamster*, Sulzer has shewn us, that during the summer season, the pulse beats one hundred

\* See *Nova Commentaria Academica Petropolitana*, tom. xiv.

ind fifty strokes in a minute; but that, if the animal is examined in the winter months, when in its torpid state, the heart hardly pulsates fifty times in a minute\*. This last observation does not apply merely to the *hamster*, but, I believe, it may be assumed as a fact, that, during the torpid state of all hibernating animals, the pulsation of the heart is very slow. This remarkably-sedative power of cold is not confined solely to the inferior animals: the influence of a cold climate on the human pulse is prodigious. It has been found, for instance, that the heart of the *Greenlander* does not beat more than thirty, or forty, strokes in a minute†.

FROM comparing these facts and experiments, and the fifth and sixth experiments of William Hewson's inquiry into the properties of the blood, may we not venture to draw the following conclusions? 1st. That cold is a great debilitating or sedative power: 2d. That if the blood of some of the hibernating animals be actually at rest for a considerable length of time, it may be rendered fluid by the gradual introduction of heat, and the animal restored to life. With these facts and observations, I finish the subject of *Sleep*, and now proceed, in the *second* place, to the inquiry of *Dreams*.

FROM the theory of *Sleep* already given, I am enabled to prosecute with more propriety the subject of *Dreams*. It has been made to appear, that profound sleep depends upon causes producing a certain degree of excitement favourable to the point at which sleep commences, and that dreams are the effects of morbid *Sleep*, which depend upon the same stimulus either stopping short of the proper point, or going beyond it. It is in this state of *Sleep*, that the *soul* does think (according to Mr. Locke), when the intellectual functions are partially suspended. Dreams may be explained, likewise, upon the same method of reasoning, as *Sleep*. Certain powers

\* Naturgesch. des Hamsters, pag. 169.

† Blumenbachii Institutiones Phys.

powers do exert their effects on the principle of life and produce an excitement unfavourable to refreshin sleep, which will be strictly attended to in the couri of this subject ; and, I think, the old adage of philosof phers, will apply equally well here, as in many othe cases, “ that Nature does nothing in vain.”

I PRESUME, from what has been advanced, it wi, obviously appear, that a complete excitement of th brain, does necessarily take place in time of profoun sleep, different from that excitement, which takes place in order to the proper exercise of the intellectual funtions in the waking state, and that, in time of morbi sleep, there is either a deficiency or an excess of ex citement, with respect to the different functions, i. different degrees. In such an intermediate state of d. ficiency or excess of excitement in the brain, there always occurs more or less of dreaming : “ There are “ in this state, false perceptions, false associations, fali “ judgments, and disproportionate emotions.” In shor the circumstances attending dreaming, are observed to take place in delirium, only differing in degree.

IN sthenic and asthenic diseases, when attended wit delirium, the excitement in the former is carried b yond that point at which inviting sleep commence and, in the latter, stops short of it.

THUS, I conceive, it will evidently appear, th there are two kinds of delirium, depending upon di fferent degrees of excitement: the one is owing to a excessive, and the other to a deficient, degree of excit ment in the brain. Further, it may, perhaps, serve illustrate the analogy between dreaming and delirium and the latter is only a bridge for the former to trav over to *Insania*, if I may be allowed the expression.

DREAMS affect thoſe moſt, who are of a debilitat and delicate habit, and thoſe eaſily affected by ſli

and trifling causes. A labouring man seldom dreams much. "The sleep of a labouring man is sweet, whether he eats little or much, but the abundance of the rich will not suffer him to sleep\*". Besides these, there are some healthy persons who seldom or never dream at all. Mr. Locke tells us, "he once knew a man that was bred a scholar, and had no bad memory, who told him, he had never dreamed in his life, till he had that fever he was then newly recovered of, which was about the five or six and twentieth year of his age." And, as a farther corroborating circumstance, I have been informed by a gentleman of my acquaintance, that Dr. William Pitt Smith, of New-York, was acquainted with a lady of that city, who, at the age of twenty-three years, declared, she had never dreamed in her life, and further, that the idea of dreaming appeared so absurd to her, that she did not believe there were any such things as dreams.—I have no doubt, the world affords many more such instances.

"THE dreams of sleeping men are, as I take it, all made up of the waking man's ideas, though, for the most part, oddly put together†". That this is not always the case, may, I presume, be proven upon Mr. Locke's own principles of reasoning, that if all our ideas are derived from sensation and reflexion, which he endeavours to maintain, and if, in time of profound sleep, the *soul* does not think, then dreaming most unquestionably must be, in time of morbid sleep, when the powers of the mind are only partially suspended; therefore, at that time, the organs of sense are excitable to new impressions from causes suggested from without, and certainly they may beget new ideas within, and likewise excite those into action already fixed in the mind, though, for the most part, incoherent.

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\* Ecclesiastes, chap. v. ver. 12.

† Locke on the Human Understanding, vol. i. pag. 76. sect. 17.

IT has been observed, in the former part of this dissertation, that the excitability is more abundant in the latter part of night, and towards morning, than in the fore part of the evening, consequently more easily affected by any stimuli, that may be at that time applied. This will, perhaps, enable us to explain more satisfactorily the phænomenon of dreaming, at the approach of day, than at any period of the night; for it is generally remarked, that thieves make choice of what is vulgarly called the dead hour of the night, to make their depredations, when people are supposed to be fast locked in the arms of profound *sleep*.

FURTHER, in support of this subject, I beg leave to adduce the following fact, from Dr. Beattie's *Dissertations Moral and Critical*. He observes, that "particular dreams might be accounted for from impressions made in time of sleep on the organs of sense, particularly those of touch and feeling. A very slight hint, suggested from without, or in any way suggested, is sufficient for fancy to work upon, in producing multitudes of visionary exhibitions. I have heard from good authority, of a gentleman in the army, whose imagination was so easily affected in sleep with impressions made on the outward senses, that his companions, by speaking softly in his ear, could cause him to dream of what they pleased: once, in particular, they made him go through the whole procedure of a duel, from the beginning of the quarrel to the firing of a pistol, which they put in his hand for that purpose, and which, by the explosion, awaked him." I take the liberty of mentioning another fact, which will help to illustrate the very point in question. It is a fact I obtained of a gentleman of my acquaintance, of extensive observation and unblemished moral character, who related his dream in the following words. "I imagined I saw, at ten o'clock in the morning, a moon in the east, shoot from itself like one meteor from another, fall to the horizon

" and

“ and assume the appearance of a rising full moon. “ Upon the appearance of this singular phænomenon, “ I thought my dog started in pursuit of it. Immediately my imagination was changed to the west, where “ I fancied I saw a person descending from heaven, in a “ flame of fire. When it came in contact with the “ earth, a very great smoke issued, which seemed to “ spread far and wide. This was soon dissipated, and “ I thought my companions said they observed a man, “ who had descended in that flame of fire. They went “ off to meet him, and, behold, returned with a person “ dressed in a sailor’s garb : I asked him from whence “ he came ? he answered, he was taken up in a water “ spout, in a river (where he was fishing for his living) “ about sixty miles from this spot ; and he observed fur- “ ther, that he should have descended much faster, if “ it had not been for a large windlass he had hold of “ in his passage from above.” A complete and judi- cious induction of the effects of these facts, are suffi- cient to prove the astonishing vivacity of the imagina- tion, the absurdity and incoherence of the ideas in time of dreaming, and that they are not always made up of the waking man’s thoughts.

I SHALL, in the *third* place, proceed to animadvert upon the effects of dreams on the faculties of the mind.

Does not the excessive or deficient degree of excitement, constituting the morbid state of sleep, wherein certain faculties of the mind are awakened, seem to argue in favour of the different powers of the mind occupying different parts of space in the brain ? If so, it will help to resolve the causes, why, sometimes the imagination, the memory, and the judgment, are partially excited, and sometimes deranged and impaired in dreams, and in diseases. There are numberless facts that may be adduced, in proof of the effects of diseases and accidents, in destroying, or impairing, the intel- lectual

lectual faculties. But, this is rather foreign to the present inquiry. I shall, therefore, confine myself to the effects of dreams on the faculties of the mind.

“THE imagination, or fancy, seems to be” one of all our mental powers, or faculties, the least suspended in its operation by sleep. Of the other powers, or faculties, some are more, others less, affected, and some appear to be, for a time, wholly suspended. That the memory is at times impaired or partially excited in sleep, may be proven from this, that a person will dream of transacting business with a deceased friend, without recollecting any thing of his death. The judgment is frequently impaired in dreams, as well as in diseases, and the imagination retains its vigour in tolerable force. That there is sometimes an association of ideas in sleep, I presume, will not be disputed; and it may be made to appear from this, that, if I dream of the object of my affection, it transports my imagination back to the place where she most commonly resides; but, for the most part, the association of ideas is false and delusive, in our dreaming moments. Sometimes, the understanding is so deranged, and has so forsaken us, that we are entirely deprived of the power and freedom of the will. Hence, in dreams, we seem to experience a false necessity of running into trouble, pain, and many other perplexities, though, with a vigorous exertion of that power of the understanding, the *will*, we should find a remedy or an antidote to all such harrassing ideas.

BUT sleep has a wonderful power over all our faculties, besides those mentioned above. Sometimes such a change takes place in the state of the brain, from the influence of certain powers, that we seem to have entirely lost our moral faculty. Hence, we sometimes dream of perpetrating crimes without scruple or remorse; crimes, both repugnant to law and to gospel, and at which we should shudder when awake. Would

it be admitted, if I were to ascribe this to the deser-  
tion of the judgment?

AN attempt to explain all the dreams recorded in the Old and New Testament, upon the same physical causes as we do those of the present day, would, perhaps, suggest a hint favourable to deistical principles, throw some objections in the way, and have a tendency to overturn, and retard the progress of, the Christian religion, with some weak and wavering minds. Far be it from me, however, that I should entertain, or even wish to support, an idea, so unfriendly to the moral science, to the happiness, and to the good order, of society: For we are warranted by the same sacred history to believe, "that dreams have given information of future events," and that they were revealed to some persons, for certain purposes, by the Deity. Hence, weak and ignorant people infer, that they are still prophetical, and ominous of *their* future events; but, what can be more absurd than such superstitious notions? "Superstition is one of the worst diseases of the soul. It is generally unfriendly to happiness, to rational piety, and to sound philosophy\*". Then, "as nature has done nothing in vain," may I not infer, that dreams are frequently of service to some people? for, according to the Chevalier Ramsay, the Deity instituted physical evil for the eradication of moral evil. May not, then, bodily and mental pain, which are frequently experienced in dreams, be of use to those persons in the way of physical admonition, and that they may be serviceable as means of moral improvement? "For we find that bodily and mental pains were the remedies, employed in the Old Testament, for extirpating vice and promoting virtue†".

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\* See Dr. Beattie's *Dissertations Moral and Critical*.

† See an *Inquiry into the Influence of Physical Causes upon the Moral Faculty*, by Benjamin Rush, M. D. professor of the theory and practice of medicine in the college of Philadelphia.

“ HE is chastened also with pain upon his bed, and “ the multitude of his bones with strong pain \*”. The wife and the learned will not despise instruction, however mean and trifling the vehicle may be that conveys it ; for great advantages may, perhaps, be derived even from an extravagant flight of the imagination, or of any other faculties of the mind, in a dream.

HAVING finished the subject of *dreams*, and the effects of *dreams* on the faculties of the mind, and having also proven that they occur in a state of morbid *sleep*, it now remains, in the *fourth* place, to point out the causes of dreams. These may be divided into *external* and *internal causes*.

FIRST. Under the head of the *external* causes, I shall consider those which affect the outward senses, either from an excess or deficiency of their stimulant powers : And,

SECONDLY. Under the head of the *internal* causes, I shall mention those which affect the internal senses likewise, either from their excess, or deficiency, of stimulant properties, and convey new impressions to the *sensorium commune*, and beget new ideas, or excite those into action, already established in the mind.

FIRST. I shall consider those external causes, which, if applied in excess, run the excitement beyond that point at which profound sleep commences.

THESE are such as excessive bodily fatigue, too great heat accumulated in the room, either from the *sun*, fire or bed-clothes, excessive eating of rich and nourishing food, and too free use of fermented, or spirituous, liquors ; too pure or dephlogisticated air; worms in the alimentary passage ; a “ great abundance and velocity “ of rich blood ;” an accumulation of urine in the

bladder ; an accumulation of the venereal stimulus ; a retention of the perspirable matter under the cuticle : In short, a retention of any of the excretions, may prove causes of *dreams*.

SECOND. I shall mention those external causes whose stimulant effects stop short of that point, at which *sleep* of the salutary kind begins.

THESE are such as idleness, cold, any way introduced, darkness, silence, too long abstinence either from eating or drinking, or, rather, a deficiency of the stimulant effects of these powers ; an uneasy position of the body in time of sleep ; tumors situated externally on, or in the neighbourhood of, the trachea ; ligatures on any part of the body ; air rendered very impure, from its being impregnated with any noxious particles ; obstructed nares, either from mucous, or polypi, or any other substance impacted in, and shutting up, their passage ; a penury of blood, and an excessive evacuation of any kind.

I SHALL proceed, in the last place, to take notice of the *second* head, under which the *internal causes* are to be mentioned.

FIRST. I shall mention those internal causes, which operate from their excessive stimulus, favouring that degree of excitement which constitutes morbid *sleep*. These are, long and intense applications of the *mind* to study or business of any kind, violent passions of the *mind*, as *love, joy, and anger*.

SECOND. I shall conclude this subject, with pointing out those *internal causes*, whose stimulus stops short of that point, at which refreshing sleep commences. These are, a kind of inactivity, sluggishness, or rather a vacancy of the *mind* ; the depressing passions, as *grief, fear, and shame*, or rather an abstraction of confidence.

HAVING concluded this dissertation, I cannot lay down my pen without embracing this favourable opportunity, of publicly returning my sincere thanks to the worthy Professors of the College of Philadelphia, and of acknowledging the many valuable and important truths delivered from their different chairs in this seminary—Hoping, that her sons may have treasured up in their minds the true principles of the science ; that they may live as rising monuments, to the honor of medicine ; and not conclude their earthly existence, till after they have extended their improvements to such a length, as will mark a glorious epoch in the annals of time.





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